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Case Report

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Delayed Infection of a Pelvic Lymphocele following Robotic Radical Prostatectomy and Pelvic Lymphadenectomy: Two Cases

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Key Words
Infection · Lymphocele · Laparoscopy · Robotic sugery · Prostatic neoplasm

Abstract
Pelvic lymphocele is an infrequent complication of pelvic surgery, usually presenting shortly after surgery. We report 2 cases with a delayed infected pelvic lymphocele presenting after transperitoneal pelvic lymphadenectomy and robotic radical prostatectomy for adenocarcinoma of the prostate. These cases illustrate that late infection of pelvic lymphoceles may occur following radical prostatectomy and pelvic lymphadenectomy. The practicing urologist should be aware of this possibility and look for an infected lymphocele in postoperative pelvic lymphadenectomy patients presenting with fever and leukocytosis of uncertain etiology, regardless of the time elapsed since surgery. To date, there is a paucity of data in the literature on robotic-assisted laparoscopic resection of a lymphocele after radical prostatectomy. The minimally invasive technique can be considered as a possible alternative to lymphocele percutaneous drainage. It is effective, results in minimal patient morbidity and allows for rapid recovery.

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Introduction

Pelvic lymphocele has long been recognized as an infrequent complication following pelvic lymphadenectomy for adenocarcinoma of the prostate [1]. The incidence of symptomatic lymphocele following simultaneous pelvic lymph node dissection (PLND) is between 3 and 14% depending on the extent of lymph node dissection and the operating surgeon [1–3]. Lymphocele development is a problem for the patient when it leads to sequelae relevant to health. In addition to secondary infection of the lymphocele, these sequelae comprise mainly thromboembolic events due to compression of the pelvic vessels. Another relevant consequence of lymphoceles is the significantly higher incidence of re-intervention [3]. We report on the development and treatment of 2 patients with delayed infected lymphoceles after a transperitoneal robotic-assisted laparoscopic radical prostatectomy and extended PLND.

Case 1

A 70-year-old Caucasian evaluated with transrectal ultrasonography and prostate biopsy for an elevated prostate-specific antigen level of 4.3 μg/l was diagnosed with Gleason score 3+4 adenocarcinoma of the prostate, clinical stage T1c. Following an uncomplicated transperitoneal non-nerve-sparing robotic radical prostatectomy with pelvic lymphadenectomy, the pathologic examination revealed pT3b and all 15 removed lymph nodes were negative for metastasis. No drains were placed during the operation. Follow-up was performed every 3 months. The patient re-

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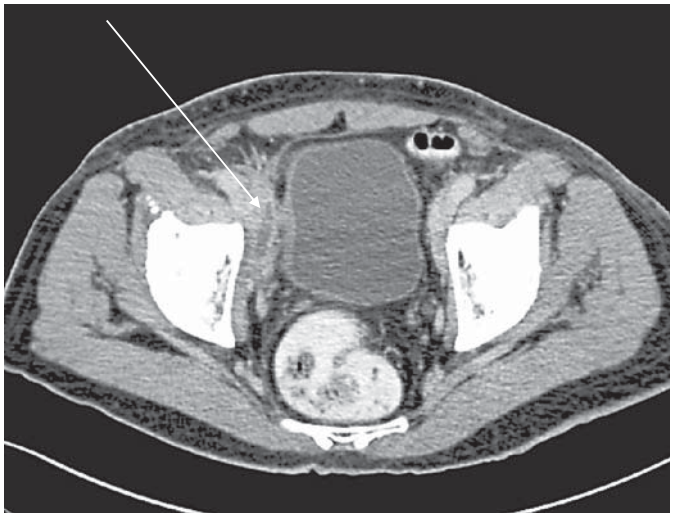

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Fig. 1. CT of patient 1 shows a thick-walled right pelvic obturator fossa lymphocele (arrow) 20 months after robotic radical prostatectomy and pelvic lymphadenectomy.
Fig. 2. CT of patient 1 shows almost complete resolution of lymphocele (arrow) after 4 weeks.

mained in a state of good health until 20 months postoperatively, when he began experiencing symptoms of malaise, intermittent fever of 39°C and progressive right lower abdominal pain.

On physical examination, his rectal examination revealed no evidence of recurrent cancer, and there were no fluctuant or tender areas. Laboratory data revealed a white blood cell count of 17.4 $\times$ 10^3/mm^3 (normal 3–9.6 $\times$ 10^3/mm^3), hematocrit of 35.6% (normal 40–50%), and normal serum electrolyte values, including a creatinine level of 78 μmol/l (normal 62–106 μmol/l). Urinalysis was unremarkable. Blood cultures and urine culture showed no bacterial growth.

Given his continued febrile state, an abdominal and pelvic computed tomography (CT) scan was obtained (fig. 1), revealing an 8.5 $\times$ 6.7 cm low attenuation lesion over the right iliopsoas muscle with a thick capsule and infiltration of the surrounding soft tissue, consistent with an infected lymphocele. Because of its low morbidity and feasibility, we decided to perform an ultrasound-guided percutaneous drainage of the fluid collection with aspiration of purulent fluid. Culture of the fluid showed profuse Gram-positive bacteria *(Staphylococcus aureus)* sensitive to amoxicillin/clavulan acid. An 8.5 F pigtail catheter was placed for drainage and the patient began a course of amoxicillin/clavulan acid. He immediately defervesced, his white blood cell count became normal to 6.06 $\times$ 10^3/mm^3 and he was discharged home after 9 days on oral amoxicillin/clavulan acid. His drainage gradually decreased and repeat sonogram showed no significant fluid collection. The drain was removed uneventfully after 12 days. A CT scan after 4 weeks showed almost complete resolution of the lymphocele (1 $\times$ 4.5 cm; fig. 2), so robotic-assisted laparoscopic resection of the lymphocele was not necessary.

Case 2

In August 2006, a 79-year-old patient with a prostate-specific antigen level of 1.96 μg/l and a Gleason score 3+4 adenocarcinoma of the prostate underwent transperitoneal robotic radical prostatectomy and pelvic lymphadenectomy. Pathologic examination revealed pT3a and all 5 removed lymph nodes were negative for metastases. In April 2007, the patient began experiencing symptoms of progressive left lower abdominal pain, pelvic fullness, abdominal distension with edema and paresthesia on his abdomen and left leg. Rectal examination revealed no evidence of recurrent cancer. He had no fever; laboratory data revealed a white blood cell count of 9.49 $\times$ 10^3/mm^3, hematocrit of 32.8% and normal serum electrolyte values, including a creatinine level of 77 μmol/l. Urinalysis was unremarkable. An abdominal ultrasound was obtained, revealing a 5.1 $\times$ 5.7 $\times$ 5.2 cm low attenuation lesion with a thick capsule in the paravesical fossa and infiltration of the surrounding soft tissue. No hydronephrosis was detected. However, in the CT scan metastasis was not excludable. Bone scintigraphy showed no bone metastasis.

An attempt at percutaneous ultrasound-guided drainage was not diagnostic. Therefore, we decided to treat the patient with robotic-assisted laparoscopic resection of the lesion. Intraoperatively and pathologically, the lesion was confirmed to be a lymphocele. Culture of the fluid showed profuse Gram-positive bacteria *(S. aureus)* sensitive to amoxicillin/clavulan acid. The patient recovered uneventfully after the operation and his symptoms dissolved rapidly.

Discussion

The cases presented are unusual because the patients' pelvic lymphoceles became infected more than 6 months after transperitoneal robotic radical prostatectomy and pelvic lymphadenectomy. A careful review of the literature revealed only 3 other reported cases of delayed infected lymphocele after surgery [4–6]. Two of the reported cases had an infected lymphocele more than 1 year

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after surgery [5, 6]. In all cases, the patients presented with chills and fever of unknown etiology. In our cases, the patients had an existing lymphocele seeded with a known skin commensal, *S. aureus*. However, the patients had no skin lesions or disruptions to explain the entry of *S. aureus* into their lymphatic system.

Pepper et al. [7] showed the rate of symptomatic lymphocele formation was low after retropubic radical prostatectomy, with an overall incidence of 3.5%. In addition, Solberg et al. [8] showed that laparoscopic lymph node dissection was associated with a statistically significant lower frequency of lymphocele formation (37%) compared to open PLND (61%).

In their series of 99 patients after robotic-assisted laparoscopic extended PLND for prostate cancer, Feicke et al. [9] reported symptomatic lymphocele in 5 patients (5%), although they placed no drains during the operation. However, lymphoceles needed to be drained percutaneously only in 2 patients (2%) [9]. The median number of lymph nodes harvested was 19 (range 8–53). Pelvic drain placement after prostatectomy has been discussed not only to prevent lymphocele formation but also to prevent urinoma formation and postoperative hematoma. Two recently published articles addressed the issue of pelvic drainage after prostatectomy, concluding that pelvic drainage can be omitted in up to 90% of robotic-assisted prostatectomies [10, 11]. Feicke et al. [9] assessed the integrity of the vesicourethral anastomosis intraoperatively in all patients of their series with a bladder filling with 50–100 ml saline. As no leakage was observed, they chose not to place a pelvic drain.

Indications for placement of a pelvic drain are rectal injury, urinary bladder injury, fish mouth bladder neck deformity, tension at the urethrovesical anastomosis, non-water-tight anastomosis, inadequate homeostasis or a large median lobe [10, 11].

The decision to treat postoperative lymphoceles has traditionally depended on associated symptoms and the patient's overall clinical status. Specifically, asymptomatic pelvic lymphoceles without mass effect on nearby organs warrant no intervention.

Aspiration as definitive treatment has been discouraged because rapid re-accumulation usually occurs [12]. Finally, in patients with giant lymphoceles not amenable to external drainage, laparoscopic unroofing or open surgical drainage of infected lymphocele has been described [3].

Conclusion

Our cases illustrate that late infection of asymptomatic pelvic lymphoceles can occur. Robotic-assisted laparoscopic resection is a minimally invasive technique and can be considered as a possible alternative to lymphocele percutaneous drainage. It is effective, results in minimal patient morbidity and allows for rapid recovery.

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